

**Agenda Item:** I.E.

**DATE:** January 27, 2005

**SUBJECT:** Report on Pharmacy Education

**ACTION RECOMMENDED:** Consideration of Report

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**BACKGROUND INFORMATION:** At the January 27 meeting, Dr. Jordan Cohen, the Commission's consultant for pharmacy education, will present his report, a copy of which is attached.

Dr. Cohen was charged this Fall by the Commission to assess:

1. The short and long term demand for pharmacists and pharmacy technicians and the depth and breadth of education needed by the pharmacy workforce in the future.
2. The appropriate numbers of pharmacy students needed to be educated within the State of Tennessee given the current demands and prescription utilization rates in Tennessee as compared to national norms.
3. The projected impact on pharmacy workforce needs if the current TennCare system is modified to reflect a more typical Medicaid program or if stringent limits on numbers of authorized prescriptions are imposed on recipients at a rate much lower than the national Medicaid average.
4. The optimal utilization of existing programs in both pharmacy and health care at UT Memphis, East Tennessee State University, UT Knoxville, as well as other hospitals and clinics throughout the state.
5. The economic development impact of a new or expanded pharmacy program on the health care and emerging pharmaceutical industry in Upper East Tennessee

Based on his review and assessment, Dr. Cohen's recommendation is that the optimal approach to expansion of pharmacy education in Tennessee is to integrate the strengths of UT and ETSU by developing a collaborative satellite UT pharmacy program in Johnson City to facilitate access for students from Northeast Tennessee, and also expand the clinical training programs for many more students using the unique rural health care model that focuses on team delivery of care -- a paradigm of care that will be needed as the population ages.

At the meeting on the 27th, Dr. Cohen and the Commission will review Tennessee and national factors central to pharmacy education, benefits and implementation of the report recommendation, and pharmacy education models in other states.

It should be noted that in a January 19 meeting at the THEC offices, UT President John Petersen and ETSU President Paul Stanton spoke in support of the collaborative approach to expanding pharmacy education to Johnson City. The position by all parties at that meeting is that this is a work in progress and that there are many significant UT and ETSU issues yet to be addressed. Operational and programming details are to be considered by key ETSU and UT staff over the next 30 days, with the first meeting scheduled for next week. As THEC chairman Jim Powell has appropriately stated, ETSU and UT leaders are to be commended for participating in good faith in all discussions regarding pharmacy education.

**RECOMMENDATION REGARDING OPTIONS FOR  
EXPANSION OF PHARMACY EDUCATION IN TENNESSEE**

**PREPARED FOR THE TENNESSEE HIGHER EDUCATION COMMISSION**

**JANUARY 19, 2005**

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## **EXECUTIVE SUMMARY**

Under contract and at the request of the Tennessee Higher Education Commission this report details an analysis of the current pharmacy workforce issues in Tennessee as well as the capacity of the currently accredited pharmacy education program in Tennessee and neighboring states to meet the current and projected need for pharmacists and pharmaceutical care, in both the near term as well as in the years ahead. National and statewide data were reviewed along with projections on health care utilization, workforce supply and demand, and federal and state health policy relative to reimbursement for pharmacists and pharmacy services. Also reviewed was the capability of the College of Pharmacy at the University of Tennessee Memphis (UT) to meet the current and future needs for all Tennesseans and a proposal put forward by East Tennessee State University (ETSU) to establish a college of pharmacy to specifically serve the needs of students, patients and pharmacy employers in Upper East Tennessee. Site visits were conducted to ETSU, UT Knoxville, UT Memphis, Tennessee Board of Pharmacy, Tennessee Board of Regents along with numerous telephone interviews of pharmacists, pharmacy preceptors and a former president of the Tennessee Medical Society.

## **PRIMARY RECOMMENDATION**

Expand the University of Tennessee College of Pharmacy enrollment to 800 total students over 4 years. Each newly admitted class would consist of 200 students in Memphis, with 50 students per year then shifting to a Johnson City satellite campus for their final three years. This coupled with continued enrollment of as many as 200-300 Tennessee students in out-of-state pharmacy colleges, will position Tennessee above the national average in terms of students/population ratio reflecting the relative higher utilization of prescriptions by Tennessee citizens. It is also reasonable to expect that a significant fraction of future Tennessee students, now inclined to attend out of state colleges of pharmacy, will begin to enroll at UT as the additional spaces become available, with those students living in East Tennessee likely expressing preference for the satellite program. The comprehensive collaborative program recommended here assures long term flexibility based upon changing demand and supply, provides much more rapid access to East Tennessee students than if a new program were to start up at ETSU and maximizes the strengths of the two Universities in terms of complimentary acute care and primary care training platforms. In addition, as dictated by future needs this allows expansion to other regions of the state with the assurance of high quality and minimal start up time.

## **SPECIFICS**

1. While focusing on the retention of only one publicly-funded school of pharmacy, this expansion is contingent upon UT developing a strong satellite pharmacy program in Johnson City which affords increased access to students from that area for a significant portion of their pharmacy education. In addition, opportunities are created for students to participate in multidisciplinary collaborative clinical education in primary and rural care jointly with faculty in the health sciences at ETSU and affiliated patient care service sites. This will greatly enhance the broadening of the UT training to provide a focus on rural and primary care for larger numbers of students.

2. Facilitate UT Memphis basic science faculty collaboration with scientists at both ETSU, as well as within the pharmaceutical and chemical industry community across the state, consistent with Tennessee and university economic development priorities. There should be a particular focus on interactions and technology transfer initiatives within the growing and expanding pharmaceutical and biomedical industry in Northeast Tennessee.

3. Carefully examine strategic options for developing pharmacy technician training programs within community colleges in Tennessee to provide highly trained technicians. These technicians are certain to be called upon to help round out the pharmacy workforce in the future as prescription volume continues to grow and demands on pharmacist's time to deliver patient care increase.

4. Make a strong commitment to continuing to develop community pharmacy residency sites especially in Johnson City and to pharmacist preceptor development to allow sufficient numbers of practitioners to be available to deliver the expanded educational programs at the intense level required.

#### **ANALYSIS:**

While the plan recommended above requires a significant collaborative effort on the part of both UT and the Regents, there are clearly benefits to both, as well as to the state of Tennessee. There is strong evidence nationally that the current demand for pharmacists who function mainly in a dispensing mode will continue to subside as the number of pharmacy graduates continues to grow through the addition of new schools and the enrollment expansion of many existing colleges of pharmacy. In addition, chain drug corporations and other large employers are adapting to the current supply and will continue to press for greater utilization of technicians and implement more and more technology in response to growing prescription volume. Mail order prescription fulfillment continues to grow as a major mode of prescription distribution and is likely to continue to do so – posing the potential for significant reduction in the number of pharmacists needed for dispensing in community pharmacies. While there is enormous potential for pharmacists to assume well-defined patient care roles as a primary job function, the payment system for this is far from reality and the impending implementation of the prescription drug benefit in the Medicare Modernization Act of 2003 has not clarified the reimbursement mechanism that will facilitate larger numbers of pharmacists providing, and being paid for these services in the immediate future.

The proposed plan builds on an exceptionally strong program at UT that can and should meet the needs of the citizens of Tennessee and takes advantage of the well recognized health professions education infrastructure at ETSU to not only develop training sites in Johnson City, but also advance the primary care model of education across the state. Other advantages include a focused investment by the state, reducing the financial risk of developing a new program that may or may not be needed in the future depending upon how pharmacy manpower needs evolve. Adoption of this model also will establish unique and unprecedented cooperation and collaboration across public universities in Tennessee, while assuring that the high

quality of pharmacy education already documented at UT permeates the education of all pharmacists in Tennessee as the costs of health care and particularly the need to reduce overall utilization and improve quality of care remain urgent priorities. In addition the national health policy and demographic issues create uncertainty in pharmacy manpower projections, this is particularly critical for Tennessee as the long term impact of a greatly modified TennCare program, which is designed to greatly reduce prescription utilization, plays out for patients and providers.

One other important consideration is the impact that expanding pharmacy education can have on Economic Development. While a strong case can be made for a major multiplier impact locally, if in fact a completely new college is initiated at ETSU, the mission and available financing will very likely restrict the number and type of basic science faculty to those needed mainly for delivering the professional program and will not focus on developing a critical mass of pharmaceutical scientists that could ultimately enhance industry growth in the area of pharmaceuticals and biotechnology. However, a collaborative program committed to linking UT Memphis and Knoxville basic scientists with the growing pharmaceutical and biotechnology industry in the tri cities area greatly enhances the potential for significant gains in technology and new product development by adding to the strengths of the existing faculty cohort. This model could conceivably also encourage greater interaction from both institutions across the state consistent with this component of Tennessee's economic development agenda.

The proposed model is also consistent with the actions that other states are taking in responding to the need to expand pharmacy education capacity and quality. Rather than create duplicate programs, the general direction is to consolidate programs building on strengths either in other parts or other campuses of the same university, or at other universities. The strategy has been to maximize the use of existing infrastructure, reduce costs and retain flexibility as future pharmacy workforce needs become clearer. In particular Texas, Florida, Minnesota, Oklahoma, South Carolina and Oregon have moved forward with consolidated models, or are in the process of initiating discussions aimed at developing satellite campus programs of varying lengths and complexity.

#### **RECOMMENDATION REGARDING OPTIONS FOR EXPANSION OF PHARMACY EDUCATION IN TENNESSEE**

This analysis and recommendation regarding pharmacy education is provided to the Tennessee Higher Education Commission and represents the consultant's findings based upon interviews, site visits and review of documentation both within Tennessee and nationally. While significant shortages in pharmacists can be well documented across Tennessee in general and in Northeast Tennessee in particular and resulted in the development of a proposal for creating a new College of Pharmacy at East Tennessee State University, longer term issues related to impending changes in health care, prescription drug coverage for seniors as a part of the Medicare Modernization Act of 2003, changes in TennCare benefit design, advances in technology and a myriad of other variables prompted the Tennessee Higher Education Commission to make a comprehensive assessment of pharmacy manpower needs in both the short

and long term. The charge to the consultant was to evaluate the current state of supply and demand while assessing the potential impact of these other variables in recommending a course of action regarding expansion of pharmacy education in Tennessee. The overriding objective was a mandate to provide a solution that has the potential to produce the best possible pharmaceutical care outcomes for the citizens of Tennessee. Specifically these recommendations are developed to assist the Tennessee Higher Education Commission and staff as they address the following issues:

1. The short and long term demand for pharmacists and pharmacy technicians and the depth and breadth of education needed by the pharmacy workforce in the future.
2. The appropriate numbers of pharmacy students needed to be educated within the State of Tennessee given the current demands and prescription utilization rates in Tennessee as compared to national norms.
3. The projected impact on pharmacy workforce needs if the current TennCare system is modified to reflect a more typical Medicaid program or if stringent limits on numbers of authorized prescriptions are imposed on recipients at a rate much lower than the national Medicaid average.
4. The optimal utilization of existing programs in both pharmacy and health care at UT Memphis, East Tennessee State University, and UT Knoxville, as well as other hospitals and clinics throughout the state.
5. The economic development impact of a new or expanded pharmacy program on the health care and emerging pharmaceutical industry in Upper East Tennessee.

## **BACKGROUND**

### **Pharmacy workforce demand and supply**

As prescription utilization and volume continues to increase, the demand for pharmacists has become extreme, especially in regions where population growth has been rapid and where there has historically been difficulty in attracting health care professionals of all types **(1)**. This pressure is being felt in Tennessee in general due to the extraordinarily high rate of prescription drug use, and in particular in East Tennessee, which is regarded historically as an underserved area within the general context of Appalachia. In fact, however, this area is rapidly gaining favor as an excellent and highly desirable part of the country to live, raise a family and retire and has attracted significant new industry in the health and biomedical sector. The area also boasts a highly effective health care system for both primary and specialty care. This rapid growth has resulted in significant expansion of retail pharmacy in the area and has created severe pressure to attract and retain pharmacists. This pressure on community pharmacy workforce in turn creates shortages in other settings, most notably hospital practitioners, due in large part to the inability of hospitals to compete for pharmacists on the basis of salary and benefits **(2)**.

While pharmacy education has been expanding nationally (20% increase in total graduates in the past decade) in terms of new schools starting and existing schools expanding their enrollment, **(3)** there has been very modest expansion of class size in Tennessee which has a single College of Pharmacy at the UT Health Sciences Center in Memphis. This program is nationally very highly regarded **(4)** but generally, not historically viewed as particularly effective in serving the needs of East Tennessee. Students from this area attend pharmacy schools out-of-state in much larger proportion to other Tennessee students, partly due to both distance and cultural barriers **(5)**. A strong case can be made for educating more Tennessee students to achieve national rates of pharmacy school attendance. Additionally the culture of the health professions education at East Tennessee State University in their existing programs medicine, nursing, and allied health, supports the inclusion of pharmacy students to provide rural and primary care training for future practitioners to serve the needs of the state.

Most employers, providers and policy makers agree that the extreme pressure for increased pharmacy graduates is the result of two main factors; (1) the aging of the population and their commitment to living more active lives, (2) the tremendous increase in utilization of pharmaceuticals driven by advances in research and increased marketing to consumers and physicians. This has led to a dramatic increase in the number of prescriptions being filled and dispensed by retail pharmacy outlets and in turn has resulted in the growth in the number of stores and an extension of their hours. All of this results in increased needs for registered pharmacists consistent with current state pharmacy regulations requiring a pharmacist on duty at all times and specifying specific functions that must be only handled by pharmacists and cannot be delegated. While the additional cost associated with pharmacist reimbursement and the dispensing function is small in comparison to product cost, the rapid rise in overall pharmacy costs in all settings and health plans has been onerous and there has been tremendous pressure to reduce this cost of dispensing while freeing pharmacists from manual tasks so that they are able to perform higher level cognitive patient care functions.

### **Technology, mail service and pharmacy technicians**

Counterbalancing the current demand for dispensing pharmacists are several major trends including; automated dispensing systems, robots, central fill for multiple stores, mail delivery of refilled prescriptions and the dramatic increase in the use, and certification, of technicians continues unabated **(6)**. Mail service pharmacy, which provides drastic reductions in costs of dispensing has been steadily growing at over 2% per year and will reach nearly 20% of retail prescriptions in the next year **(7)**. In addition there is concern among the pharmacy community that as the Medicare Drug Benefit evolves there will be increasing incentives to move to mail, raising concerns about patient safety due to lack of effective counseling, especially for elderly patients. As pharmacy laws continue to change under this pressure to decrease costs and improve safety in the medication use system, most expect significant reductions in the number of pharmacists that will be needed in the future for this dispensing or medication procurement function. This reduction has been estimated as high as 50% and represents a projected need of no more than 100,000 pharmacists rather than the current workforce of nearly 200,000. **(8,9)**. Thus while dispensing volume drives



today's workforce needs it will likely not be the driving force for tomorrow and changing the supply side of pharmacy education to respond to today's needs will likely result in serious long term problems, if there is not flexibility or reversibility built into the decision. .

### **Future roles and needs for pharmacists in health care**

The health care system in the US continues in need of major reform. Costs are too high and growing rapidly, access is too low and quality of care lags behind many other developed countries, many of which spend far less per capita than the United States. Coordination and management of care and incentives for cost containment are inadequate. As the baby boomers approach retirement this current crisis will get much worse as social security fails to meet the estimated utilization costs and insurance becomes less available and affordable to average Americans. Pharmaceuticals represent the most significant treatment modality in health care and as costs continue to rise, continued pressure to reduce utilization and control cost will dominate our health care landscape. At the same time there is a preponderance of data to suggest that properly used drug therapy will result in improved health and reduced overall costs within the entire health care system. To achieve this will require a major overhaul in our health care system. Teams of providers will be needed to manage chronic elderly patients on increasingly complex medication regimens. This situation is particularly acute in the ambulatory care setting. Problems associated with inappropriate drug use, poor compliance, drug interactions, suboptimal prescribing and poor monitoring result in massive increases in costs associated with hospitalizations, physician visits and laboratory testing.

Projections of future pharmacy workforce rely heavily on whether or not this type of care model can be developed since the current payment reimbursement mechanism for pharmacists in the community is only based upon product markup and not delivery of services. Possibilities exist in the new Medicare Modernization act of 2003, which not only provides prescription drug insurance coverage for Medicare beneficiaries, but also mandates Medication Therapy Management Services (MTMS) for selected populations and disease states which will likely involve pharmacist intervention **(10)**. At this time, however, the payment mechanism for these services has not been fully developed leaving the question of how many and what types of pharmacists may be needed to provide these services still an open question **(11)**. Significant cost savings have been achieved in pilots involving pharmacists in collaboration with physicians engaging in disease and case management in pilot studies involving, communities, unions, employer groups, and state Medicaid programs. For a payment system to emerge that fits the needs outlined above these will have to be expanded to become a standard of pharmacy practice throughout the country and the public will expect routine delivery of high levels of pharmaceutical care, often independent of the dispensing function. This already exists in many inpatient settings but has yet to emerge significantly in community and especially primary and rural care settings. If the payment system remains as is then the need for pharmacy graduates will remain limited to those involved in dispensing and subject to limitations based upon current and growing cost pressure and will likely be even lower as a result of increased incentives to distribute prescriptions through large automated mail service pharmacies employing large numbers of technicians and limited numbers of pharmacists..

## **Implications for pharmacy education**

Pharmacy educators continue to be faced with the reality that much of today's practice is being devoted to dispensing while continuing to strive to educate students who will become practitioners who add value by delivering patient care. Many students already enter these types of practices today and many others are frustrated in not being able to exercise their patient care skills due to practice settings where prescription volume is too large to allow time or compensation for patient care and forces them into mainly a dispensing mode. Current pharmacy accreditation standards **(12)** are moving steadily to being able to demonstrate student's capabilities to effectively interact with physicians and patients, identify and resolve drug related problems, and take responsibility for managing drug therapy with the patients other care givers. Today's pharmacy education programs provide intensive education requiring 4 professional years and increasingly is attracting students with more than 2 years of pre pharmacy. These trends are likely to continue, especially as pharmacy continues to be viewed so favorably in terms of job opportunities and salary. Another important feature of today's applicant pool is the growing number of applicants with prior degrees seeking new careers.

This intensive patient care role for pharmacy requires that programs provide clear role models and opportunities for students to be exposed to both acute and ambulatory care settings and ideally to work to some degree with primary care teams. This is especially true if the long term health care needs of many Americans are to be met. Thus one crucial element of pharmacy education and the capacity to expand it is the availability of high quality sites and practitioners who can provide this type of experiential education. This is particularly challenging in today's community pharmacy practice environment.

If in fact pharmacists eventually are reimbursed for these higher level cognitive services there are many who believe that some form of credentialing over and above the current Doctor of Pharmacy degree may be expected or even required **(13)**. Thus possibilities are strong that advanced training through residency education and perhaps even board certification will become the norm. This further demands the highest caliber of Pharmacy education with the availability of a strong faculty and adequate facilities and resources to prepare students for a very different practice environment **(14)**.

## **ASSESSMENT OF THE TWO CURRENT PROPOSALS FOR EXPANSION OF PHARMACY EDUCATION IN TENNESSEE**

### **East Tennessee State University**

The health science center at East Tennessee State University and the Quillen College of Medicine offer an exciting and unique environment in which to educate future pharmacy students with a strong focus on primary and rural care. The community is solidly behind this effort as are the President and senior officials in the College of Medicine and the Veterans Administration Medical Center. The impetus behind this proposal are the historic lack of interest on the part of students from this region

applying to and attending UT Memphis for both geographic and cultural reasons. Other factors include the continued difficulty in recruiting pharmacists to this area and the potential synergy in pharmacy education based on the on the long term success of ETSU College of Medicine in developing primary care clinicians and their success in retaining graduates in this region to serve the needs of the local communities in Tennessee and other parts of Appalachia. A unique, and possibly problematic, feature of this proposal is the plan to charge a higher differential tuition for pharmacy students on the premise that students from this area now are forced to leave and attend out-of-state, mostly private colleges of pharmacy in other states charging higher levels of tuition. Additionally they propose to fund-raise for capital construction and program start up and relying upon tuition to provide the needed operating funds for the college long term.

Strengths of this proposal include the commitment to education in the health professions, the ability to model team primary care for students in their experiential years and the very strong level of community support for the college both from an educational and economic development perspective, given the region's focus on the biomedical and health care industries. After the full compliment of faculty are recruited and the program initiated there may also be potential synergy with some of the research programs at the Quillen College of Medicine and the VA Medical Center on the part of the faculty in the College of Pharmacy.

Concerns relative to this proposal include a reliance on a tuition strategy that is heavily depending on today's very robust applicant pool and a possible underestimation of the operating costs to maintain a program of the type proposed. Possible prospects for decreased needs for pharmacists in the years ahead, the national competition and the reality that many students will pursue residencies and not necessarily return to the area and the political implications of differential pharmacy tuition in state institutions also raise questions as to whether starting an entire new college in this region will achieve the desired results in years to come. Based upon the THEC review of demographic data for students enrolled in pharmacy programs there may also be an inadequate number of students to support a college using this financial model for operations. Should there be a tuition shortfall due to either too few students enrolled and/or political pressure to change the tuition structure relative to UT there would be additional pressure on the State to adequately fund the college. The challenge of recruiting faculty to a new program also may well be daunting given the shortage of quality faculty applicants nationwide in pharmacy **(14)**. Settling for less well trained faculty puts the program in danger of not having the necessary rigor and quality needed for the preparation of future pharmacists.

### **University of Tennessee**

The University has been proposing to increase their class size at the Memphis campus for several years, but has been unable to do so because of lack of state funding. Their recent success in being awarded planning and construction funding for a new building will greatly ease their space issues and provide significant capacity for expansion of class size assuming additional state funding or new targeted tuition revenues are forthcoming to adequately provide for needed new faculty and staff and other infrastructure needs to assure continued high quality. Their current proposal is to

increase class size in Memphis in response to today's shortage and also develop a 75 student cohort of students in the final 3 years of the professional program in Knoxville using the existing infrastructure of the Department of Pharmacy at the UT Knoxville medical center. They have commitments from hospital administration to expand the facility and provide classrooms for didactic instruction and propose to fund new faculty and staff lines from the tuition revenue associated with class size expansion. This proposal is in response to the expressed needs for better access to the UT program from students in the middle, southern and eastern parts of the state. In order to insure uniform quality in basic science instruction and cohesion of their classes in terms of professionalism and exposure to diversity they would retain the entire cohort of newly admitted students on the Memphis campus in their first professional year. This strategy for expansion could also be used in the future to expand other sites in the state as demand and faculty/staff and clerkship resources are available.

Strengths of this proposal involve the logic of expanding this highly successfully program which could be expanded more rapidly and with less total cost than starting a new college. Reliance on infrastructure, experienced staff, an existing admissions, advising and financial aid system, along with the availability of sophisticated IT systems for business and educational functions, would reduce the required staff and be expected to result in more successful recruitment for new faculty positions given the existence of an existing quality faculty and critical masses in all areas. There is the additional advantage that the program could be more easily contracted with less cost implications if future pharmacy education needs were to shrink rather than expand. In addition there is significant anecdotal evidence that the opportunity for students to select the Knoxville campus for their final 3 years will offset some of the concerns about access to UT from students from the Northeast Tennessee region.

Concerns about this program include the prevalent perception that the Memphis program has been mainly inpatient focused and not particularly focused on community practice or primary care despite the strong partnerships that they have developed with several community pharmacy residency sites. The perception that the university can and will serve the entire state's pharmacy education needs will have to be changed. Housing is expected to be a major challenge in terms of students moving from one campus to another and is currently a major problem for students in their clerkship year as many must leave Memphis to gain breadth and depth of experience elsewhere. The opportunities for primary care and community based pharmaceutical care training all over the state, and especially in conjunction with the UT Knoxville and Quillen Colleges of Medicine are exciting and will require significant efforts to work out logistical, cultural and attitudinal perception issues that remain strong.

## **FINANCIAL CONSIDERATIONS**

Recognizing that appropriate funding of higher education is an issue in Tennessee as in all other states, the challenge of optimizing this expansion of pharmacy education while making the best use of public funds and existing resources is a daunting one. The inverse relationship between Medicaid cost increases and deficits and challenges to funding for higher education, is well documented and creates a particularly complex paradox in dealing with this issue **(15)**. Tennessee has a unique opportunity to

address this issue creatively to allow efficient use of state resources, while building upon the strengths of both the exiting pharmacy program in Memphis and the rural health model at ETSU. Further, given the much higher than average pharmaceutical use and costs in Tennessee, in part due to the benefit structure for TennCare prior to the recent changes, the state has a major stake in assuring the highest possible quality in pharmacy education so that the future graduates will be positioned to work collaboratively with medicine and nursing to help address cost and quality issues involving drug use among seniors. As a result this problem must be addressed in terms of assuring a very high quality pharmacy workforce (including pharmacy technicians) for the next 30 years, while still responding to the current pressures for dispensing pharmacists caused by the rapid growth in the population and resultant growth of the chain drug industry. Further the resolution of this issue must provide the state with a flexible solution as the role, supply and demand for pharmacist changes and the population ages and migrates. The comprehensive collaborative program model recommended here assures long term flexibility based upon changing demand and supply, provides much more rapid access to East Tennessee students than if a new program were to start up at ETSU and maximizes the strengths of the two Universities in terms of complimentary acute care and primary care training platforms.

#### **PRIMARY RECOMMENDATION:**

**All of this leads to the overarching recommendation that the optimal approach to expansion of pharmacy education in Tennessee is to integrate the strengths of UT and ETSU by developing a collaborative satellite UT pharmacy program in Johnson City to facilitate access for students from Northeast Tennessee, and also expand the clinical training programs for many more students using the unique rural health care model that focuses on team delivery of care – a paradigm of care that will be needed as the population ages.**

Immediate advantages of this model include:

Avoids the significant lead time (up to 3 years) to start-up a completely new program with another 4 years before there are any graduates

Minimizes time and energy needed to develop a new curriculum, recruit staff and faculty and gain accreditation status necessary to admit students.

Builds upon the current established strong infrastructure at UT in recruitment, admissions, financial aid and student affairs.

Takes full advantage of the strong national reputation of UT to facilitate the recruitment of a cohort of outstanding new faculty much more readily than having to do so from a new program base. This is particularly true given the extreme competition for faculty nationwide.

Permits immediate access for existing 3<sup>rd</sup> and 4<sup>th</sup> Year pharmacy students at UT to the rural health care clerkship model in existence at ETSU and help to moderate the

strong perception that UT Memphis is focused only on West Tennessee and is predominantly inpatient/acute care focused in terms of experiential training.

Creates a model from which either expansion or contraction is possible, depending upon the future demand for pharmacists and pharmacy education all over the state and offers a template for creating additional satellite programs in other areas of the state as needed.

Provides a unique opportunity to help address the dual problems of cost and quality of drug use across Tennessee. Both the pharmacy and medical provider communities appear to be ready to work toward these ends.

While recognizing that this type of expansion and collaboration would be much easier operationally if the two universities involved were under the same governance structure and presidential leadership, the compelling nature of the quality of the resources at these two institutions demands that THEC and the two systems work in partnership to develop a unified model of pharmacy education to respond to the future health care needs of Tennessee. In fact if pharmacy education can be successfully delivered across the state collaboratively, it will serve as a unique model to expand health professions education and care by building on existing strengths and infrastructure and minimizing duplication and unnecessary new infrastructure associated with the establishment of completely new independent programs.

## **IMPLEMENTATION**

1. Expand the College of Pharmacy enrollment to 800 total students over 4 years. Each newly admitted class would consist of 200 students in Memphis, with 50 students per year then shifting to an East Tennessee satellite campus for their final three years. This coupled with continued out of state enrollment of as many as 200-300 Tennessee students in other pharmacy programs will position Tennessee above the national average in terms of students/population ratio reflecting the relative higher utilization of prescriptions by Tennessee citizens. It is also reasonable to expect that a significant fraction of future Tennessee students now inclined to attend out-of-state will begin to enroll within UT as the additional spaces become available, with those students living in Northeast Tennessee expressing preference for the satellite program.

While focusing on the retention of a single strong publicly-funded school of pharmacy for Tennessee, this expansion must be contingent upon UT developing a collaborative satellite pharmacy program(s) located in East Tennessee affording increased access to students from that area to UT for a significant portion of their pharmacy education and creating opportunities for large number of students to participate in multidisciplinary collaborative clinical education in primary and rural care jointly with faculty in the health sciences at ETSU and affiliated patient care service sites. This will greatly enhance the broadening of the UT training to provide a focus on rural and primary care for larger numbers of students.

2. Facilitate the collaboration of UT Memphis and Knoxville basic science faculty with scientists at ETSU as well as within the pharmaceutical and chemical industry

community across the state consistent with Tennessee and university economic development priorities. A specific focus should be on interactions and technology transfer initiatives with the rapidly expanding pharmaceutical and biomedical industry in the Northeast Tennessee.

3. Carefully examine strategic options for developing pharmacy technician training programs within community colleges in Tennessee to provide highly trained technicians certain to be called upon to help round out the pharmacy workforce in the future as prescription volume continues to grow and demands on a pharmacists' time to deliver patient care increase.

4. Make a strong commitment to continuing to develop community pharmacy residency sites, especially in East Tennessee and to pharmacist preceptor development to allow sufficient practitioners to be available to deliver the expanded program at the intense level required.

### **EXAMPLES OF POSSIBLE PROGRAM CONFIGURATION**

**In assessing the current and future state of pharmacy education in Tennessee and proposing the satellite campus model, several scenarios were examined, including the following five. They are outlined here as examples and not intended to be prescriptive.**

**Scenario I:** Following the UT expansion plan a 50 student cohort moves from the Memphis to the Knoxville campus at the start of their P-2 year with a cohort of 20-30 students move to Johnson City for their final two years.

**Scenario II.** Following the UT expansion plan a 50 student cohort moves from the Memphis to the Johnson City Campus at the start of their P-2 year in with a cohort of 20-30 students move to Knoxville for their final two years.

**Scenario III.** Establish two 3 year satellite programs with 25 students per class in both Johnson City and Knoxville.

**Scenario IV:** Establish a 4 year campus in Johnson City comparable to the Minnesota-Duluth rural model for 50 students and provide options for UT to open an additional 3 or 4 year satellite programs, e.g. Knoxville, Nashville, Chattanooga or elsewhere depending upon future demand and need.

**Scenario V.** Encourage the universities to modify any of these or propose other Models to enable the optimal utilization of resources responsive to the needs of Tennessee.

### **CONSIDERATIONS FOR PROGRAM DELIVERY:**

The details of how the expanded program operates will depend on the financial and governance arrangements, nature of faculty appointments and the degree to which distance learning technology is utilized for delivery of didactic coursework in the first

three years. In considering budget options it will be important for the program to be adequately funded so that the same high quality of education occurs on the satellite campuses as now occurs in Memphis. In the consultant's experience, there are widely varying funding formulas for Pharm.D. education and given the desire to produce a high caliber graduate capable of delivering sophisticated pharmaceutical care services the budgets developed for this program should reflect what is being done at the strong public universities which form a peer group for UT. While there are models in recent private colleges that reflect greatly reduced personnel and operations expenses, this is not the model that Tennessee should pursue if you are to achieve the outcomes desired in education and patient care. Thus adequate numbers of highly qualified faculty and a strong support staff in areas of student affairs, academic affairs, faculty development, grant and contract support personnel, IT support personnel and recurring funding for hardware and software renewal. Instruction must include adequate amounts of small group learning to assure that graduates develop patient evaluation problem solving skills that will be needed as graduates assume a larger and larger role in managing medication therapy. Since it likely that some of the instruction will occur in a distance learning mode or be web based, then careful examination of initial and upgrade costs should be undertaken to assure the desired quality program.

### **MODELS FROM OTHER STATES**

Several models already exist that involve expansion at distant sites with Texas, Minnesota and Florida representing three worthy of careful examination.

**The University of Texas at Austin** has had the longest history of operating satellite pharmacy campuses in response to the extreme distances in that state. The absence of other health programs in Austin prompted the very early development of a clinical campus at U. Texas- San Antonio Health Sciences campus. Several full time clinical faculty are based there and a large number of students spend all or parts of their last two years in this venue. Didactic instruction is delivered primarily via live, interactive television broadcasts in both directions to alleviate faculty travel, although periodic trips are made to develop a closer tie between course instructors and students. About 15 years ago a second satellite campus was developed at U. Texas-El Paso where a cadre of full time, in-residence faculty are based and deliver, again with a large measure of distance learning technology, the first two years of the Doctor of Pharmacy curriculum. Students then transfer to Austin for their third year prior to being again disseminated all over the state in their final year for clerkships. More recently in responding to the rapid population growth and resulting increased need for pharmacists, additional campuses are being developed in the Rio Grand Valley in an effort to expand the program opportunities to students statewide yet retain the quality and infrastructure associated with the strong accredited University of Texas program.

At the **University of Florida**, three 4 year satellite campuses in Orlando, Jacksonville and Tampa have each enrolled 50 students per class for newly admitted students with the majority of the teaching being done through video streaming of lectures from primary faculty on the Gainesville campus. At each of these satellite campuses a relatively small number of full time, non-tenure track practice faculty serve as onsite instructors for facilitating small group discussions and assessing skill development in



the pharmacy practice laboratories. They also work closely with the Gainesville faculty, who serve as primary course instructors and make 1-2 personal visits to meet with the satellite classes each semester. Local pharmacists, serving in mainly a volunteer capacity, are relied upon to interact frequently with the students as role models and mentors and to enhance professionalization at the satellite campuses. In the Florida model most advanced student clerkships are taught by paid adjunct faculty and all student clerkships are managed centrally through the office of experiential programs at Gainesville. Given the tremendous increase in the senior population in Florida, additional campuses are planned at greater distances from the College in Gainesville.

**The University of Minnesota** has developed their 50 student satellite site at Duluth by investing heavily in new on site full time faculty, hired an Executive Associate Dean, and created a nearly complete second campus external to the parent University of Minnesota school of Pharmacy in Minneapolis. Both tenure and non tenure track faculty are appointed and the reliance on interactive TV for lecture delivery is limited to the basic sciences courses in the first two years. Full time Duluth-based faculty participated in these interactive sessions to facilitate teaching and learning. Small group and laboratory instruction is conducted by onsite faculty. It is anticipated as the Duluth cohort of students engages in clinical education the local faculty will be directly involved in clerkship education in a model very similar to that which could be established at ETSU. Both programs rely heavily on the existing infrastructure at the main campus for admissions, student affairs, IT and other critical services.

Other states are currently struggling with the triad of issues involving pharmacy educational capacity, quality of educational programs and limited state resources - particularly for higher education. **South Carolina** has moved in the boldest direction and is working to merge two separately accredited and governed colleges of pharmacy at the University of South Carolina (USC) in Columbia and at the Medical University of South Carolina (MUSC) in Charleston into a single public South Carolina College of Pharmacy. This was based upon initial agreement on the part of both presidents that this was in the best interests of the universities, the state and the programs, and are currently searching for a single Dean who will oversee the transition from two colleges to one. The official location of the college administration will be in Charleston, but there will be significant faculty presence and senior associate deans on both campuses where faculty offices and laboratories will be housed. At this early stage, MUSC appears to have retained the designation for the College of Pharmacy, but a significant effort at not allowing USC to lose its pharmacy identity is being undertaken in light of the perceptions and political implications. The overall goal is to reduce duplication of infrastructure and create a program that will be stronger in terms of professional education and research than either of the current colleges alone. As in the other cases listed above, there was a strong perception among faculty that faculty recruitment to support these expansions will benefit from the stature of the currently accredited program. Details of faculty appointments, governance, and finances will emerge over the next 3 years and this should prove to be a model where lessons might be learned as Tennessee proceeds. An interesting note here is that there are Colleges of Medicine at each of these campuses, comparable to the situation in Tennessee.

Another relevant example may be **Oregon** where a formal agreement between the Oregon State University (OSU) in Corvallis, current base for the School of Pharmacy there, and the Oregon Health Sciences University (OHSU) in Portland, home of the state's School of Medicine and several other health science programs and other elements of a major academic health center. This is designed to strengthen the current contractual arrangement for clinical education of OSU students, provide for additional numbers of faculty in Portland and expand the number of students receiving a large portion of their education on the Portland campus. One of the decisive factors in Oregon was the recognition that the clerkship faculty at OHSU was not regular members of the School of Pharmacy faculty at OSU for purposes of accountability to the educational program, as their primary reporting relationships and job responsibilities were focused at OHSU and specifically to the hospital.

While each state has a particular set of strengths and potential political and other barriers to collaborative models involving multiple universities, the trend towards collaboration and even consolidation is clear as states deal with perceived duplication, the need to assure strong programs and declining resources. The additional unknowns surrounding future pharmacy manpower needs further supports a model where duplication is avoided and flexibility is assured. The recommendation here is that a collaborative model in Tennessee is both advisable and feasible and will take maximal advantage of the support from existing community based pharmacists and faculty in the colleges of medicine, nursing and public health at ETSU.

## **SUMMARY**

While the plan recommended above requires a significant collaborative effort on the part of both UT and the Regents, there are clearly benefits to both as well as to the state of Tennessee. There is strong evidence nationally that the current demand for pharmacists who function mainly in a dispensing mode will continue to subside as the number of pharmacy graduates nationally continues to grow through the addition of new schools and the expansion of many existing programs. In addition, chain drug corporations and other large employers are adapting to the current supply and will continue to press for greater utilization of technicians and implement more and more technology to offset rising salaries and pharmacy costs. Mail order prescription fulfillment is growing rapidly as a major mode of prescription distribution and is likely to continue to do so as the Medicare Drug Benefit is implemented. In the absence of a reimbursement model for pharmacist services there exists the potential for significant reduction in the number of pharmacists needed for dispensing in community pharmacies. While there is enormous potential for pharmacists to assume well defined patient care roles as a primary job function, the payment system to be utilized to compensate pharmacists for medication therapy management has not yet been developed, and several options being discussed suggest much less of an investment in this phase of the program than would be needed to facilitate a program with significant impact on the care and costs associated with seniors.

The proposed plan builds on an exiting strong program that can and should meet the needs of the citizens of Tennessee and takes advantage of the well recognized health professions education infrastructure at ETSU to not only develop training sites in East Tennessee, but also advance the primary team care model of education across the

state. Other advantages include a focused investment by the state, reducing the financial risk of developing a new program that might not be needed in the future depending upon how pharmacy manpower needs evolve, establishing a new era of cooperation and collaboration across public universities in Tennessee and assuring that the high quality of pharmacy education already documented at UT permeates the education of all pharmacists in Tennessee as the need to reduce cost, prescription utilization and improve quality of care remains an urgent priority. This model also permits THEC and the institutions to be more responsive to changing demands for pharmacists with reduced financial exposure for either reducing or expanding pharmacy programs within Tennessee. In addition to the national health policy and demographic issues creating uncertainty in pharmacy manpower projections, this is particularly critical for Tennessee as the long term impact of a greatly modified TennCare program, which is designed to result in greatly reduced prescription utilization, plays out for patients and providers.

One other important consideration in this issue is the impact that expanding pharmacy education can have on Economic Development. While a strong case can be made for a major multiplier impact locally if in fact a completely new college is initiated at ETSU, the mission and available financing will very likely restrict the number and type of basic science faculty to those needed mainly for delivering the professional program and will not focus on developing a critical mass of pharmaceutical scientists that could ultimately enhance industry growth in the area of pharmaceuticals and biotechnology. However, if this collaborative program can be developed to facilitate the interaction of UT Memphis and Knoxville basic scientists with the growing pharmaceutical and biotechnology industry in the tri cities area, the potential for significant gains in technology and new product development could become significant given the strengths of this faculty cohort. This model could conceivably also encourage greater interaction from both institutions across the state consistent with this component of the states economic development agenda.

While this approach requires extraordinary cooperation and collaboration among several key institutions, organizations and individuals and is highly dependent on the available financing and tuition models that are developed, Tennessee clearly has an opportunity to become a national leader in responding to rapidly escalating drug utilization and costs and expand pharmacy education in a high quality cost effective manner. The benefits of working towards an optimal solution that is fiscally responsible will, over the long term, optimize educational opportunities for students from all parts of Tennessee and contribute to improved health care and lower health care costs for Tennesseans. Lastly, this approach could help the entire state move to a new and more responsive public financing for health care and health professions education and serve as a model for other states across the country to examine and replicate.

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# RECOMMENDATION ON PHARMACY EDUCATION EXPANSION

Presented to Tennessee Higher Education Commission

January 19, 2005

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# GOALS OF THE PROJECT

Review the written documentation, make site visits and meet with key leaders and stakeholders throughout the state in order to assess:

1. The short and long term demand for pharmacists and pharmacy technicians and the depth and breadth of education needed by the pharmacy workforce in the future.
2. The appropriate numbers of pharmacy students needed to be educated within the State of Tennessee given the current demands and prescription utilization rates in Tennessee as compared to national norms.
3. The projected impact on pharmacy workforce needs if the current TennCare system is modified to reflect a more typical Medicaid program, or if stringent limits on numbers of authorized prescriptions are imposed on recipients at a rate much lower than the national Medicaid average.
4. The optimal utilization of existing programs in both pharmacy and health care at UT Memphis, East Tennessee State University, UT Knoxville, as well as other hospitals and clinics throughout the state.
5. The economic development impact of a new or expanded pharmacy program on The health care and emerging pharmaceutical industry in Upper East Tennessee.

# TENNESSEE FACTORS

- Resident student accessibility to pharmacy education
- Higher education efficiency
- Public funds
- Flexibility for Tennessee
- Tuition proposals
- Quality of program
- State and regional demographics
- State and regional economic development
- TennCare

# NATIONAL FACTORS

- Current demand
- Future demand
- Technicians and technology
- Supply and mobility of graduates
- Role of pharmacist
- Availability of faculty



# PRIMARY RECOMMENDATION

**Recommendation is that the optimal approach to expansion of pharmacy education in Tennessee is to integrate the strengths of UT and ETSU by developing a collaborative satellite UT pharmacy program in Johnson City to facilitate access for students from Northeast Tennessee, and also expand the clinical training programs for many more students using the unique rural health care model that focuses on team delivery of care – a paradigm of care that will be needed as the population ages.**

# IMPLEMENTATION

- Expand UT incoming class to 200 (800 total) with emphasis on admitting students from NE TN – all in Memphis year 1
- Establish satellite campus cohort in Johnson City and perhaps elsewhere – 50 students cohort moves to Johnson City campus for years 2 and 3 and then all go on to clerkships
- Work to integrate ETSU primary care model for UT clerkships
- Facilitate collaboration among UT and ETSU and industry for basic scientists and among Health Services Research collaborators across the professions and with TennCare to examine improved models of delivering care
- Examine feasibility and advisability to establish technician training programs in community college locations
- Enhance preceptor development and pursue additional community pharmacy residency sites - particularly in the eastern part of the state

# BENEFITS OF MODEL

- More rapid startup
- Build on UT infrastructure
- Easier to recruit faculty to established program
- Allows primary care model to proceed
- Much more flexible based upon future needs
- Establishes precedent for cooperation in health science education in Tennessee
- Timely for Tennessee given TennCare and pharmacy challenges

# OTHER STATES

- University of Minnesota
- University of Florida
- University of Texas
- Oregon State University
- South Carolina